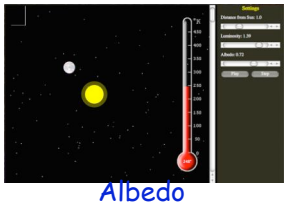
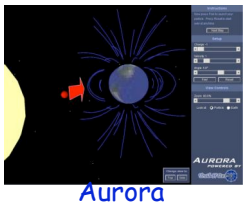
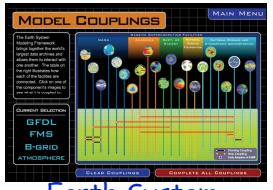
Science Interactives from ESTO/CT and Truth-N-Beauty Software Overview

Earth-Sun System


Albedo


Aurora

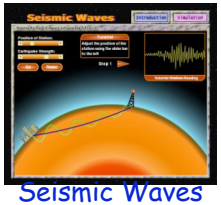

Coronal Mass Ejection



Earth System Modeling Framework

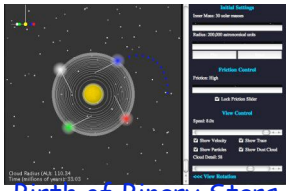

Invasive Species


Predator-Prey

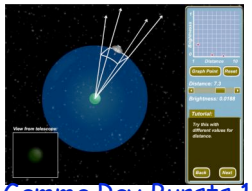


Seismic Waves

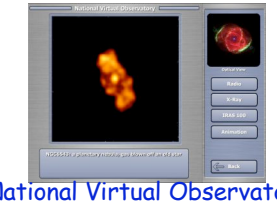
Universe


Birth of Binary Stars


Collapse of Clouds

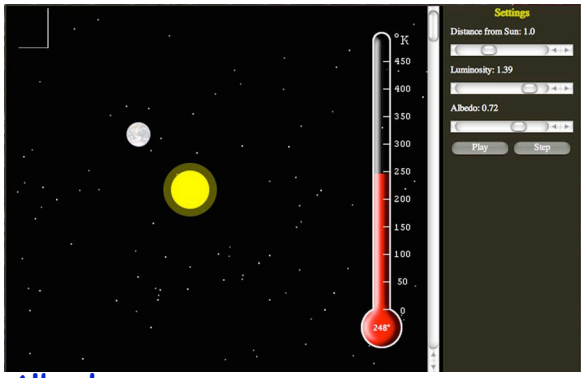

Gamma Ray Bursts 1


Gamma Ray Bursts 2

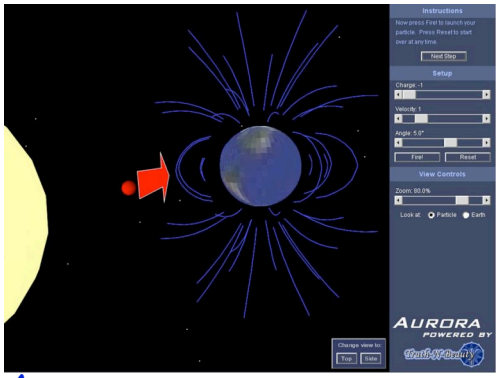

National Virtual Observatory

- The Computational Technologies (CT) Project and Truth-N-Beauty Software concluded a 2-year partnership to communicate how CT Round-3 investigators use high-performance computing to better understand and predict natural phenomena.
- This partnership produced 12 "science interactives": mini-simulations that allow anyone to change physical parameters and watch the effects.
- Accompanying stories provide lay-accessible background on the investigation topics.
- Truth-N-Beauty established publishing agreements with some of the world's leading science Web sites: www.astronomy.com, www.discover.com, and www.sciam.com.
- Interactives were demonstrated in NASA exhibits at SC2002 (Baltimore) and SC2003 (Phoenix).
- CT staff are currently promoting the availability of the interactives to science museums.
- The interactives are available at: http://www.truth-n-beauty.com/transfer/NasaCT/

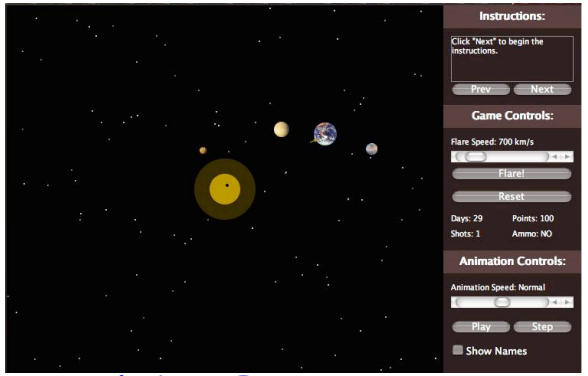
Science Interactives from ESTO/CT and Truth-N-Beauty Software
Earth-Sun System



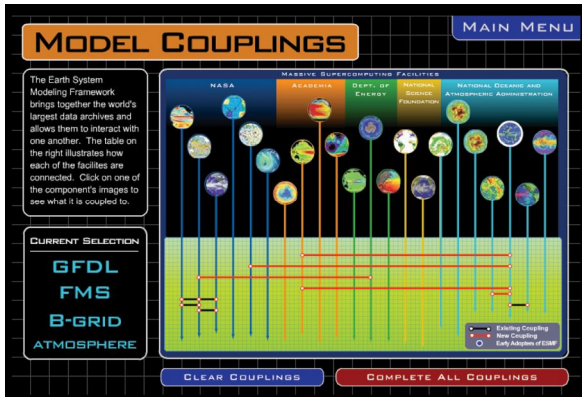
Albedo
Goal: Learn how a planet's reflectivity changes its temperature.
Investigation: Atmosphere/Ocean Dynamics and Tracers Chemistry, C. Roberto Mechoso, University of California, Los Angeles
Published: www.astronomy.com



Aurora
Goal: Launch a charged particle from the Sun to create virtual aurorae.
Investigation: Space Weather Modeling Framework, Tamas Gombosi, University of Michigan
Published: www.astronomy.com



Coronal Mass Ejection
Goal: Fire coronal mass ejections from the Sun toward the planets.
Investigation: Space Weather Modeling Framework, Tamas Gombosi, University of Michigan
Published: www.sciam.com



Earth System Modeling Framework
Goal: See how U.S. weather and climate models are being combined in new ways.
Investigations: Earth System Modeling Framework, Part I: Timothy Killeen, National Center for Atmospheric Research; Part II: John Marshall, Massachusetts Institute of Technology; Part III: Arlindo da Silva, NASA/Goddard Space Flight Center
Published: NASA News Release

ESTO
Earth-Sun System Technology Office

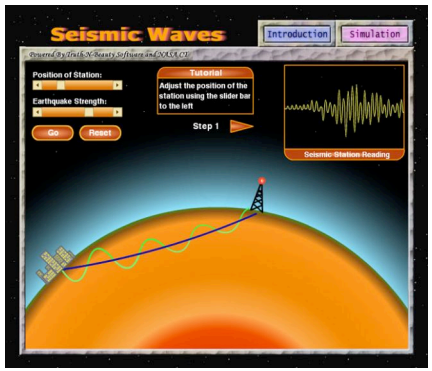
Science Interactives from ESTO/CT and Truth-N-Beauty Software
Earth-Sun System (continued)

Invasive Species

Goal: Introduce a foreign species into a stable ecosystem to see what happens.
Investigation: Biotic Prediction, John Schnase, NASA/Goddard Space Flight Center
Published: www.discover.com

Predator-Prey

Goal: Explore the way populations of predators and their prey interact.
Investigation: Biotic Prediction, John Schnase, NASA/Goddard Space Flight Center
Published: www.discover.com (Expected)

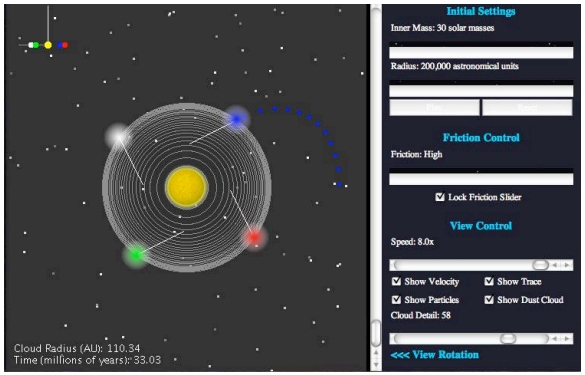


Seismic Waves

Goal: Watch seismic waves traveling through Earth during an earthquake.
Investigation: QuakeSim, Andrea Donnellan, NASA/Jet Propulsion Laboratory
Published: www.discover.com

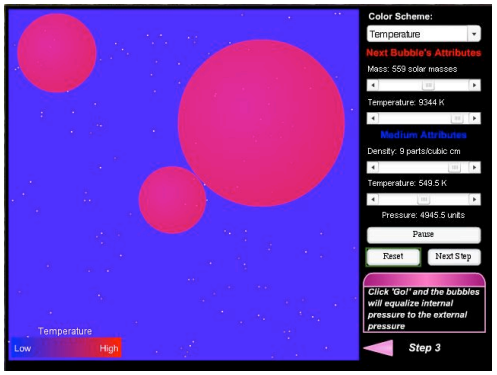
ESTO
Earth-Sun System Technology Office

Science Interactives from ESTO/CT and Truth-N-Beauty Software Universe



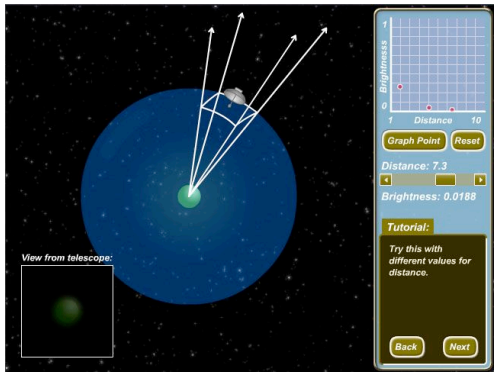
Birth of Binary Stars

Goal: See how stars are formed through collapse and rotation of interstellar gases.
Investigation: Block-Structured Adaptive Mesh Refinement Methods for Multiphase Microgravity Flows and Star Formation, Phillip Colella, Lawrence Berkeley National Laboratory
Published: www.discover.com



Collapse of Clouds

Goal: See how changes in temperature and density affect pressure inside clouds of gas in space.
Investigation: Block-Structured Adaptive Mesh Refinement Methods for Multiphase Microgravity Flows and Star Formation, Phillip Colella, Lawrence Berkeley National Laboratory
Published: www.discover.com (Expected)

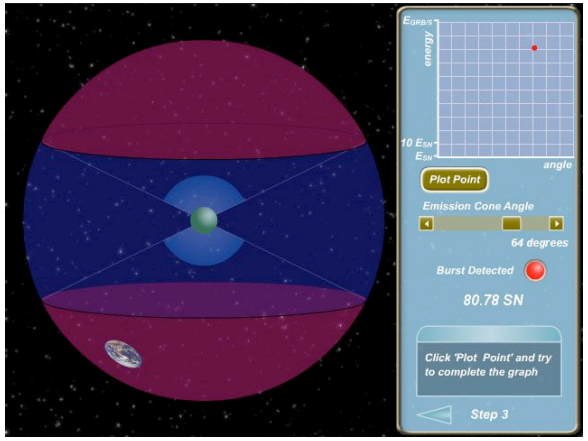


Gamma Ray Bursts 1

Goal: Explore how the properties of Gamma Ray Bursts change depending on their distance from Earth.
Investigation: Interoperability Based Environment for Adaptive Meshes (IBEAM) with Applications to Radiation-Hydrodynamic Models of Gamma Ray Bursts, Paul Saylor, University of Illinois at Urbana-Champaign
Published: www.sciam.com

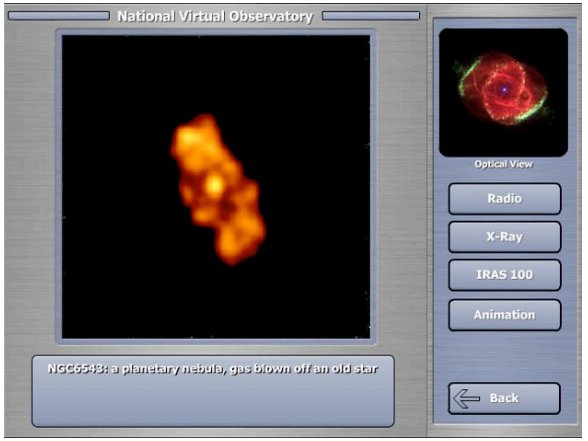
ESTO
Earth-Sun System Technology Office

Science Interactives from ESTO/CT and Truth-N-Beauty Software Universe (continued)



Gamma Ray Bursts 2

Goal: Explore how the energy of Gamma Ray Bursts changes depending on how they explode.
Investigation: Interoperability Based Environment for Adaptive Meshes (IBEAM) with Applications to Radiation-Hydrodynamic Models of Gamma Ray Bursts, Paul Saylor, University of Illinois at Urbana-Champaign
Published: www.sciam.com



National Virtual Observatory

Goal: Learn about how the National Virtual Observatory is allowing astronomers to work together more efficiently than ever before.
Investigation: Montage, Thomas Prince, California Institute of Technology
Published: www.sciam.com